

# NextGen: Transforming the Air Transportation System

David S. Kerr  
Joint Planning and Development Office (JPDO)

# NextGen Challenge

- **The Current System is Not Performing Adequately**
  - Delays up 20% since 2006
- **The Current System is Not Scalable**
  - Demand increasing – need system scalable to three times capacity
  - Impractical to add more sectors and controllers
  - Single voice channel radio limits capacity
- **The NextGen Vision Offers a Transformation that Resolves Current Inadequacies**
- **Cost of Not Moving to NextGen**
  - >\$40 billion by year 2020, and >\$100 billion by year 2030

# NextGen: The Short Story

NextGen is a **Congressionally mandated** initiative to modernize the air transportation system in order to:

- Increase **capacity** and **reliability**
- Improve **safety** and **security**

These improvements to the air transportation system will be achieved by applying:

- **Space-based surveillance and navigation** to improve upon the current radar and radio beacon capabilities
- **Digital communications** to expand the capabilities of the current analog voice system
- **Advanced automation** of the air traffic management functions to improve controller and aircrew safety and productivity

# The NextGen Initiative

- The Next Generation Air Transportation System (NextGen)
  - Joint Planning and Development Office planning and coordinating
  - FAA NextGen Implementation and Integration Office implementing
- Partners



Department of Transportation



Department of Defense



Department of Homeland Security



Department of Commerce



Federal Aviation Administration



National Aeronautics and Space Administration



Office of Science and Technology Policy



# NextGen Institute: Mechanism for Industry Involvement

- Primary Role of the Institute
  - To provide a mechanism for private sector to actively engage with government in defining, developing, and implementing the NextGen System with the JPDO
    - 16-member Institute Management Council (IMC)
    - 250+ private sector Working Group participants
- Nine Working Groups
  - Each has a government and an industry co-chair

# Benefits to Airports

- Increased safety in the airport operational environment
- Better use of existing capacity
- Greater design flexibility
- Reduced environmental impact

## Key Capabilities:

Network Enabled Access

Broad Area Precision Operations

Weather Assimilated into decisions

Aircraft Trajectory Based Operations

Super Density Operations



# NextGen Transformation

***From...***



***To...***

**Ground-based Navigation and Surveillance**

**Voice Radio Control**

**Disconnected Information Systems**

**Manual, Tactical Air Traffic Control**

**Fragmented Weather Forecasting**

**Visibility Limited Airfield Operations**

**Forensic Safety System**

**Inefficient Security Screening**

**Current Aircraft Environmental Footprint**

**Satellite-based Navigation and Surveillance**

**Digital Data Exchange**

**Net Centric Information Access**

**Automation Assisted Air Traffic Management**

**Probabilistic Weather Decision Tools**

**Equivalent Visual Operations**

**Prognostic Safety System**

**Integrated Security Risk Management**

**Reduced Aircraft Environmental Footprint**



# Joint Planning and Development Office NextGen

[www.jpdo.gov](http://www.jpdo.gov)